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contradict one another, it remains to discover the characters that should control, and this becomes a matter of opinion rather than of demonstration.

On the basis of wood anatomy, as interpreted by PENHALLOW, a phylogeny of the gymnosperms is constructed that certainly contradicts many of the conclusions that have been drawn from the other methods of attack. From the Cycadofilices two great divergent lines arise, one being the Cycadophytes, the other the general conifer-like plexus; this view seems reasonable enough. The conifer-like forms are thought to have been derived through such forms as Poroxylon, which in turn forked into Cordaitales and another branch which forked into Ginkgoales and Coniferales. It is interesting to note that the araucarians are made a branch of the Cordaitales stock. The Taxaceae (taxads and podocarps) are made the earliest side branch of the Coniferales stock; then come the Taxodineae, the Cupressineae, and finally the Abietineae, whose most modern and specialized expression is Pinus. Just how this phylogeny can be related to that of Jeffrey, for example, to say nothing of the phylogeny of modern morphology, is not clear. Either mature wood structure is not significant in phylogeny, or there will have to be an extensive revision of our former conclusions.

At all events, it is a good thing to have these facts before us; and the book will certainly be highly useful in its practical applications and also as a great assistance in the recognition of fossil material.—J. M. C.

NOTES FOR STUDENTS

Items of taxonomic interest.—W. N. CLUTE (Fern Bull. **16**: 1, 2. 1908) has described a new Asplenium from Arizona.—C. B. ROBINSON (Bull. Torr. Bot. Club **35**:63–75. 1908) has begun a series of contributions bearing the title "Alabastra philippinensis," the first one containing descriptions of 12 new species.—P. C. STANDLEY (*idem* 77–78) discusses certain New Mexican forms of Echinocereus and describes a new species.—H. D. HOUSE (*idem* 89–90) has described 2 new species of Evolvulus from the Bahama Islands.—E. GILG (Bot. Jahrb. **40**:444–518. 1908), in an account of the African Flacourtiaceae, describes numerous new species and the following new genera: *Trichostephanus*, *Marquesia*, and *Ophiobotrys*.—A. ENGLER (*idem* 519–572), among numerous new species of African plants, describes species under Gnetum, Loranthus (30), Viscum (7), and Garcinia (22), and a new genus (*Acanthotreculia*) of Moraceae.—B. L. ROBINSON (Rhodora **10**:29–35. 1908) has revised the nomenclature of a number of plants of the northeastern United States, chiefly of minor varieties and forms, and includes the description of a new Woodsia from Minnesota and Michigan.—G. HIERONYMUS (Hedwigia **47**:204–224. *pls. 1–4.* 1908), in an account of the pteridophytes of STÜBEL'S South American collections, describes new species under Diplazium (8) and Asplenium.—R. KELLER (Bull. Herb. Boiss. II. **8**:175–191. 1908), in a revision of Hypericum § Brathys, recognizes 21 species, 6 of which (from South America and Mexico) are described as new.—L. L. CAPITAINE (*idem* 251–253) has described a new genus (*Hyalocalyx*) of Turneraceae from Madagascar.—

M. L. Fernald (Rhodora **10**:46–55. 1908), in notes on some plants of northeastern America, publishes a number of new combinations, forms, and varieties, and also new species under Potamogeton, Fragaria, Callitriche, and Vaccinium.—A. Finet (Bull. Soc. Bot. France IV. **7**:531–538. 1908) has published a new genus (*Pseudoliparis*) of Orchidaceae from China, and also (*idem*, Mémoires, pp. 65. *pls. 12*) an account of African orchids of the tribe Sarcantheae, including many new species and the new genera *Monixus*, *Rhaphidorhynchus*, *Ancistrorhynchus*, and *Dicranotaenia*.—F. Gagnepain (*idem* 538–544) has described two new genera (*Oligolobos* and *Xystrolobos*) of Hydrocharitaceae from China.—T. Makino (Bot. Mag. Tokyo **22**:14–20. 1908) has described the new genera *Alectorurus* (Liliaceae) and *Tubocapsicum* (Solanaceae) from Japan.—S. Okamura (*idem* 29–31, 41–44. *pls. 2, 3*) has published two new genera (*Orthomniopsis* and *Okamuraea* Broth.) of mosses from Japan.—Marcus E. Jones (Contrib. Western Bot. No. 12. pp. 100. 1908) has described numerous (96) new species of western plants, including *Scopulophila* (Illecebraceae) and *Cusickia* (Umbelliferae) as new genera; and has critically reviewed the western Umbelliferae, adopting Cogswellia to replace Peucedanum.—W. R. Maxon (Contrib. U. S. Herb. **10**:473–503. *pls. 55, 56.* 1908), in the first number of a series of studies of tropical American ferns, has described as new genera *Holodictyum* (an "asplenioid fern") and *Ananthacorus* (allied to Vittaria), and several new species.—J. M. Greenman (Field Columb. Mus. Publ. Bot. **2**:247–287. 1908), in a paper on new or noteworthy spermatophytes from Mexico, Central America, and the West Indies, has described new species under numerous genera, 25 species of Senecio being new or fully characterized for the first time, and *Goldmania* (Coreopsideae) being a new genus.—D. Prain (Kew Bull. **1908**:114) has described a new genus (*Acrymia*) of Labiatae from Malaya.—J. M. C.

Diseases of apples.—Burrill[2] and Blair[3] have published two bulletins presenting what may be considered a summary of their extensive investigations of the bitter rot of apples, both as to its botanical relations and methods of control and eradication by removal of the cankers and proper spraying methods. Few orchard diseases have received such attention, and every orchardist and plant pathologist should read these two publications, which are too extensive to be summarized here.

Stevens and Hall[4] have recently published a description of several apple diseases. The volutella rot of the fruit is due to *Volutella fructi* Stevens and Hall. *Coniothyrium fuckelii* Sacc. is recorded as causing a fruit rot and also producing

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[2] Burrill, T. J., Bitter rot of apples. Botanical investigations. Bull. Ill. Exp. Stat. **118**:553–608. *pls. 10.* 1907.

[3] Blair, J. C., Bitter rot of apples. Horticultural investigations. Bull. Ill. Exp. Stat. **117**:481–552. *pls. 2.* 1907.

[4] Stevens, F. L., and Hall, J. G., Some apple diseases. Bull. N. Car. Exp. Stat. **196**:37–55. *figs. 5.* 1907.